

THERMAL BARRIER COATING

Abstract

A thermal barrier coating (TBC) for a component intended for use in a hostile thermal environment. The TBC has an interior region and an outer surface region on and contacting the interior region. Both regions are formed of a ceramic material, with the interior region having a lower thermal conductivity than zirconia partially stabilized by about seven weight percent yttria. The interior region constitutes more than half of the thickness of the TBC, and the outer surface region constitutes less than half of the thickness of the TBC. The TBC has a columnar microstructure whereby the interior region and the outer surface region comprise columns of their ceramic materials. The outer surface region is more erosion and impact resistant than the interior region at least in part as a result of the columns thereof being more closely spaced than the columns of the interior region.